

Changes in emotion recognition relate to hypertension status

Background: Emotional processing in essential hypertension beyond self-report questionnaire has hardly been investigated. The aim of this study is to examine associations between hypertension status and recognition of facial affect.

Methods: 25 healthy, non-smoking, medication-free men including 13 hypertensive subjects aged between 20 and 65 years completed a computer-based task in order to examine sensitivity of recognition of facial affect. Neutral faces gradually changed to a specific emotion in a pseudo-continuous manner. Slides of the six basic emotions (fear, sadness, disgust, happiness, anger, surprise) were chosen from the „NimStim Set“. Pictures of three female and three male faces were electronically morphed in 1% steps of intensity from 0% to 100% (36 sets of faces with 100 pictures each). Each picture of a set was presented for one second, ranging from 0% to 100% of intensity. Participants were instructed to press a stop button as soon as they recognized the expression of the face. After stopping a forced choice between the six basic emotions was required. As dependent variables, we recorded the emotion intensity at which the presentation was stopped and the number of errors (error rate). Recognition sensitivity was calculated as emotion intensity of correctly identified emotions.

Results: Mean arterial pressure was associated with a significantly increased recognition sensitivity of facial affect for the emotion anger ($\beta = -.43, p = 0.03^*, \Delta R^2 = .110$). There was no association with the emotions fear, sadness, disgust, happiness, and surprise (p 's $> .041$). Mean arterial pressure did not relate to the mean number of errors for any of the facial emotions.

Conclusions: Our findings suggest that an increased blood pressure is associated with increased recognition sensitivity of facial affect for the emotion anger, if a face shows anger. Hypertensives perceive facial anger expression faster than normotensives, if anger is shown.

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